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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,693	10/20/2003	John N. Lee	3404-2-1	4662

22442 7590 02/25/2005

SHERIDAN ROSS PC
1560 BROADWAY
SUITE 1200
DENVER, CO 80202

EXAMINER

SEALEY, LANCE W

ART UNIT	PAPER NUMBER
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2671

DATE MAILED: 02/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/689,693

Applicant(s)

LEE ET AL.

Examiner

Lance W. Sealey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-102 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-100 is/are allowed.
- 6) ☒ Claim(s) 1,2,7,8,101 and 102 is/are rejected.
- 7) ☒ Claim(s) 3-6 and 9-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20031119,20041027</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION***Allowed and Allowable Subject Matter***

1. Claims 13-100 are allowed, and claims 3-6 and 9-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. No prior art anticipates or suggests, in a method for modifying a representation of a surface on a computational system, (A-3) generating a modified version of said particular surface, wherein there are a plurality of new points on said modified version that are not on said particular surface, and each said new point is determined as a function of: (a) at least one point obtained from a first geometric object representation, and (b) at least one point obtained from a second geometric object representation, wherein said generating step includes computing, for each of one or more said points, a weighted sum of at least one point on each of said first and second geometric object representations (claims 3 and 9), and providing or using a computational system for (3) generating a representation (**R**) of said first surface, wherein for at least a subcollection of points of **R**, the subcollection being representative of a surface portion of said first surface, each point **q** of the subcollection, determined by performing step (B-2) determining closeness data **d_q**, indicative of a closeness between **p_q** and a corresponding point representation **p_s** of said first shape data, wherein **p_s** is used in determining **p_q**; and (B-3) using said closeness data **d_q** and the point representation **p_q** in determining **q** (claims 13 and 100). Claims 4-6 and 10-12 are allowable because they depend, directly or indirectly, on claims 3 and 9, respectively. Claims 14-99 are

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allowed because they depend, directly or indirectly, on claim 13.

Claim Rejections - 35 USC § 102

2. The following is a quotation of 35 U.S.C. 102(b) which forms the basis for all novelty rejections set forth in this Office action:

A person shall be entitled to a patent unless—

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Taneja (U.S. Pat. No. 5,774,359).

4. Taneja, in disclosing a method for generating an extended rolling ball fillet surface between two surfaces, also discloses, with respect to claim 1, a method for modifying a representation of a surface on a computational system, comprising

- graphically displaying a particular surface having first and second curves provided thereon (FIG.5A; first curve is **152**, second curve is **154**);
- activating, by a user of the computational system (FIG.1), a user interface technique (see col.3, l.65) for deforming said particular surface, wherein the following steps A-1 through A-3 are performed:
- (A-1) first determining points on a first geometric object representation ($A(u,v)$, FIG.6A) wherein said first geometric object representation represents first data used in evaluating a desired contour of said particular surface at a majority of points on said first curve that are representable by said computational system (inherent that a first geometric object representation represents determined points; the desired contour is represented by contact

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curve $C1(w1)$ in 168, FIG.6A);

- (A-2) second determining points on a second geometric object representation ($B(s,t)$, FIG.6A) wherein said first geometric object representation represents first data used in evaluating a desired contour of said particular surface at a majority of points on said first curve that are representable by said computational system (inherent that a second geometric object representation represents determined points; the desired contour is represented by contact curve $C2(w2)$ in 170, FIG.6A);
- (A-3) generating a modified version of said particular surface, wherein there are a plurality of new points on said modified version that are not on said particular surface, and each said new point is determined as a function of (a) at least one point obtained from said first geometric object representation; and (b) at least one point obtained from said second geometric object representation (174, FIG.6A--the one point obtained from said first geometric object representation is from $C1(w1)$, a curve which is part of the first geometric object representation (see col.5, ll.5-11), and the one point obtained from said second geometric object representation is from $C2(w2)$, a curve which is part of the second geometric object representation (see col.5, ll.14-20)), and
- graphically displaying said modified version (FIGS.2A,2B,3A,3B and 11 show different aspects of this operation. FIGS.7 and 8 show a slightly different operation, but these figures best label the objects and surfaces involved. Each claim limitation will be rejected with the figure that is the best illustration in Taneja of the applicants' claim

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limitations.)

5. Concerning claim 2, both first $(A(u,v))$ and second $(B(s,t))$ geometric object representations include a representation of a surface (see FIG.7).

6. Therefore, in view of the foregoing, claims 1-2 are rejected as being anticipated under 35 U.S.C. 102(b) by Taneja.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 7-8 and 101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taneja.

9. Regarding claim 7, Taneja discloses a method for deforming a particular surface, comprising providing a particular surface (FIG.7);

- first obtaining first data for defining a first geometric object having a dimension greater than or equal to two, wherein said first geometric object includes a first part that substantially coincides with a first portion of said particular surface $(A(u,v))$, FIG.7);
- first determining first points of said first geometric object, said first data used in determining said first points, wherein at least some of said first points are spaced apart from said particular surface (1. if the object is determined, then the points within that

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object are inherently determined. 2. the points in $F(p,q)$ in FIG.11 are also determined, and some of those points are separate from the surface);

- second obtaining second data for defining a second geometric object having a dimension greater than or equal to two, wherein said second geometric object includes a first part that substantially coincides with a first portion of said particular surface ($B(s,t)$, FIG.7);
- second determining second points of said first geometric object, said second data used in determining said second points, wherein at least some of said second points are spaced apart from said particular surface (1. if the object is determined, then the points within that object are inherently determined. 2. the points in $F(p,q)$ in FIG.11 are also determined, and some of those points are separate from the surface);
- generating a modified version of said particular surface, wherein (i) and (ii) following are satisfied:

(i) said modified version includes first and second portions ($A(u,v)$ and $B(s,t)$,

FIG.7); and

(ii) there are a plurality of new points on said modified version that are not on said particular surface (the only points that are part of extended rolling ball fillet $F(p,q)$ in FIG.11 that are part of the surface are the endpoints of the fillet, which are on the curves $C1(w1)$ and $C2(w2)$ (see FIG.8), which are parts of objects $A(u,v)$ and $B(s,t)$, respectively (see FIG.7)) and each said new point is determined as a function of (a) and (b) following:

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(a) for at least one point, p_1 , from the at least some of said first points, a distance-like value indicative of a spacing between: a position identified by a location of p_1 , and said first part, and (b) for at least one point, p_2 , from the at least some of said second points, a distance-like value indicative of a spacing between: a position identified by a location of p_2 , and said second part; and graphically displaying said modified version (point p_1 is the point on the curve $C1(w1)$ where the fillet begins, point p_2 is the point on the curve $C2(w2)$ where the fillet ends. Given these designations, it would have been at least obvious to a person skilled in the art at the time this invention was made that the distance-like value for (a) would be the distance between the point p_1 and the point on the dividing line between objects $A(u,v)$ and $B(s,t)$, and the distance-like value for (b) would be the distance between the point p_2 and the point on the dividing line between objects $A(u,v)$ and $B(s,t)$); and

- graphically displaying said modified version (FIGS. 2A, 2B, 3A, 3B and 11 show different aspects of this operation. FIGS. 7 and 8 show a slightly different operation, but these figures best label the objects and surfaces involved.)

10. Concerning claim 8, both first ($A(u,v)$) and second ($B(s,t)$) geometric object representations include a representation of a surface (see FIG. 7).

11. Claim 101 is like claim 7 except that claim 101 discloses a data storage device. Taneja discloses this element in computer 106, FIG. 1.

12. Therefore, in view of the foregoing, claims 7-8 and 101 are rejected as being unpatentable under 35 U.S.C. 103(a) by Taneja.

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13. Finally, claim 102 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taneja in view of Jefferis et al., AutoCAD for Architecture R13 ("AutoCAD").

14. Taneja discloses identification by a user of at least first and second reference geometric objects from a display of a graphical user device (FIGS.2A,2B,3A,3B and 11). However, Taneja does not disclose the other claim limitations of claim 102. These limitations are disclosed by the AutoCAD software for drawing blueprints as described by the Jefferis et al. textbook.

15. AutoCAD discloses determining a collection of additional geometric objects using one or more of (i) and (ii) following: (i) a location for at least one of said reference geometric objects, and (ii) directional information indicative of one or more directions from at least one of said reference geometric objects (COPY command, pp.261-264); wherein said additional geometric objects of said collection provide geometric information for determining a corresponding at least one of: a position, orientation and shape for each of one or more further geometric objects, said one or more further geometric objects including first and second geometric objects; and generating said one or more further geometric objects using said additional geometric objects from said collection, wherein each said further geometric object has its said corresponding at least one of: position, orientation and shape (objects copied will of course have the same position, orientation and shape).

16. Therefore, it would have been obvious to one of ordinary skill in the art at the time this invention was made to apply the AutoCAD drafting software to the Taneja drafting software by adding code for the AutoCAD COPY command to the software running in the Taneja computer

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106 (FIG.1). The COPY command is a convenient method of reproducing objects when multiple objects need to be drawn (AutoCAD, p.261).

Conclusion

Any inquiry concerning this communication or earlier communications from the Office should be directed to the examiner, Lance Sealey, whose telephone number is (703) 305-0026. He can be reached from 7:00 am-3:30 pm Monday-Friday EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached at (703) 305-9798.

Any response to this action should be mailed to:

MS Non-Fee Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

or faxed to:

(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA, Sixth Floor (Receptionist).

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600